

5GtoB Accelerating Industry Digitalization in Europe

Zaheen Khan

Sept 08th , 2021

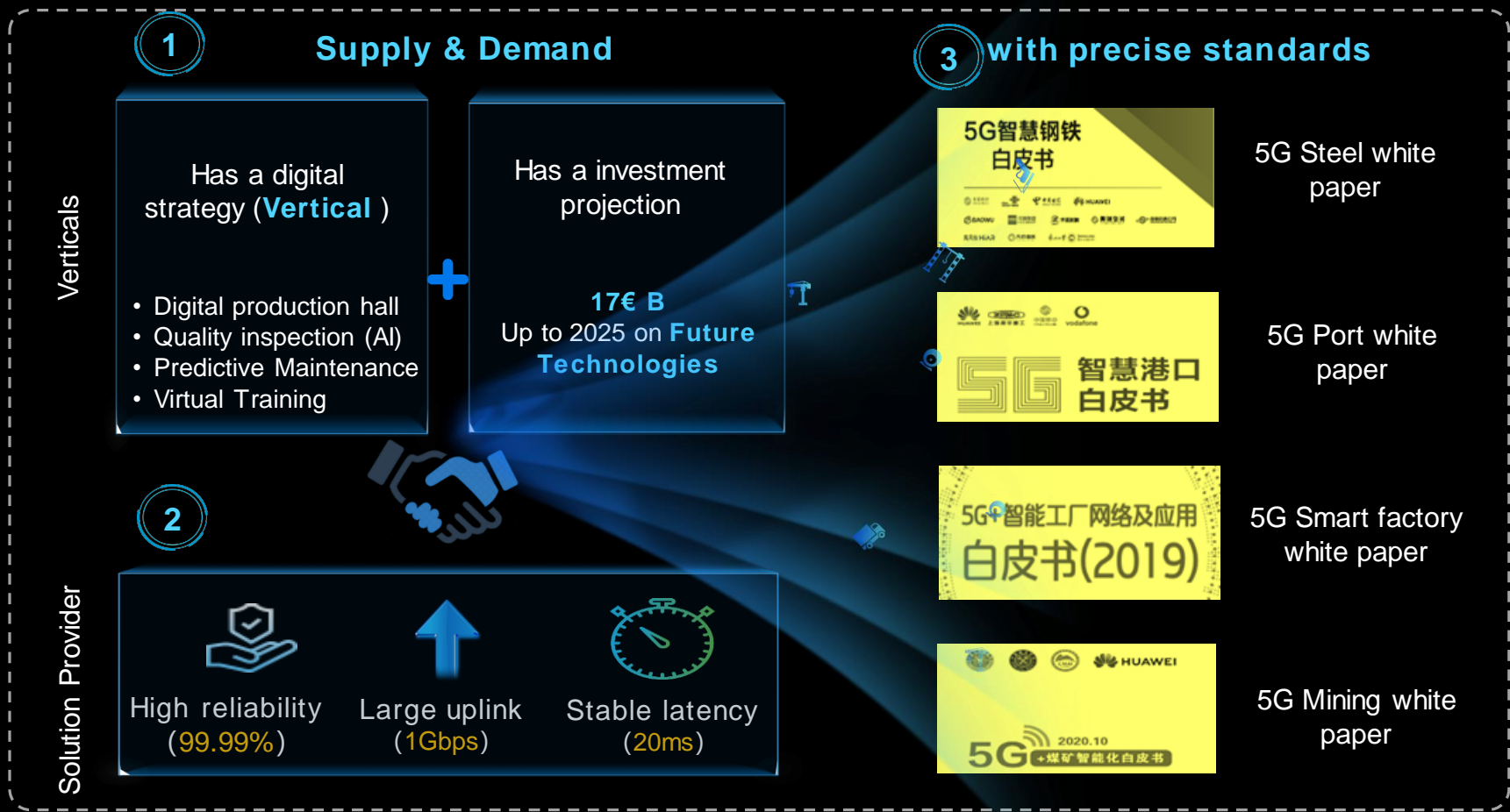
5G Industry Summit 2021



Deutsche Messe
Technology Academy

Critical success factors for adoption of 5G in industry

Selection Criteria



References



Port & Mining

- **50%** top **10** ports belongs to China
- China among **Top 10** metals and mining companies



Oil Refinery

- Saudi Arabia ranked **2nd** **Oil Producer**



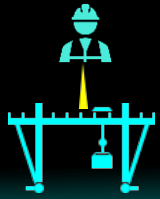
Entertainment

- World **best** **entertainment** services
- MMB
- VR
- HD movies

Use Case 1: crane remote control – 5G for a **better EHS**

AS-IS

Traditional



1 person controls 1 RTG
Always on Duty

Low efficiency
hazardous area

TO-BE

5G remote control

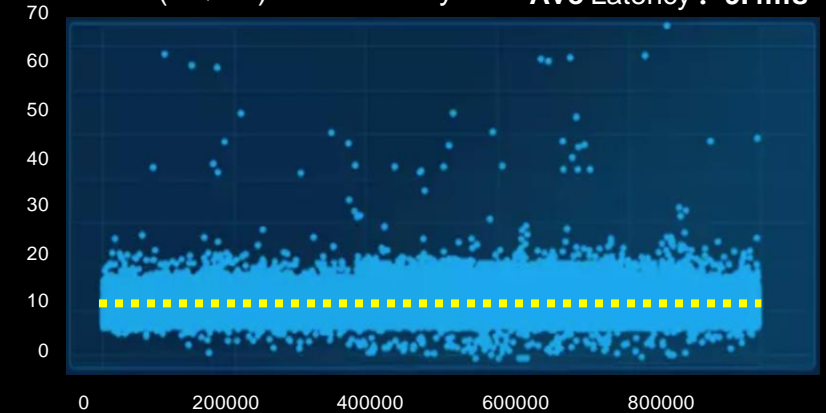


1 person controls 4 RTG
Higher efficiency for
Safer Operation

Key Validation Result

CPE2 (5QI=6) E2E Latency

Ave Latency : 9.4ms



Stable Latency as required



Safer Environment
(Outdoor work is shifted to
indoor)



15-20X Loading
Efficiency



5G Crane O&M
75%



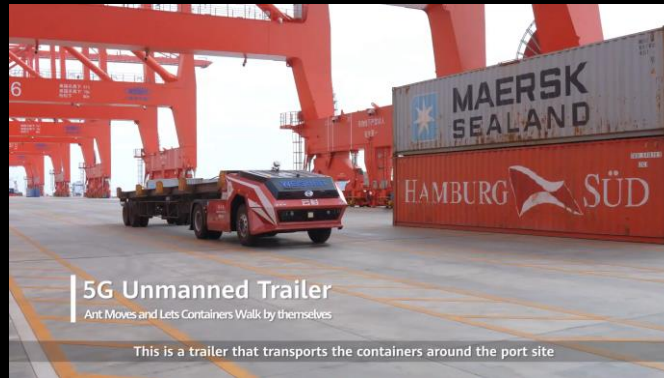
Use Case 2: AGV – 5G for a **greater efficiency**

AS-IS



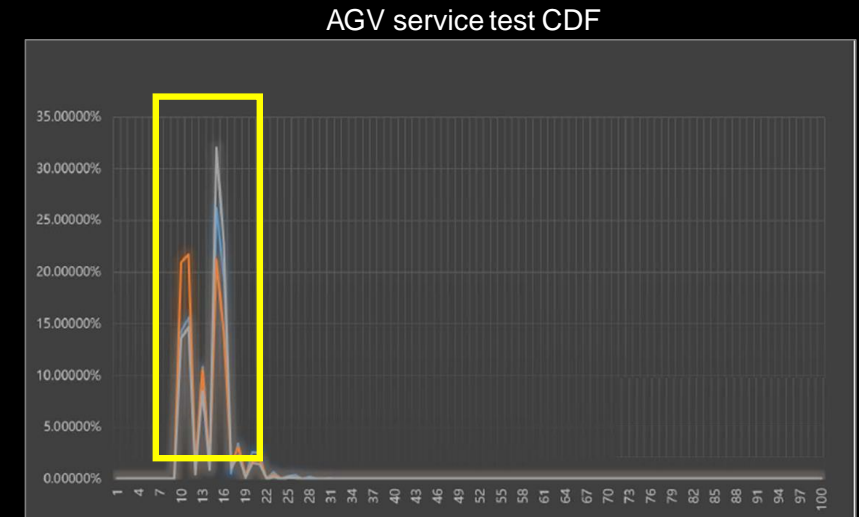
- Average Latency **200ms**
- Ping-Pong **handover**

TO-BE



- Low Latency **< 50 ms** & Platooning
- **Improvement** in Core production operation
- Build **Uplink** MU simulation **capability**

Key Validation Result



- Test result shows **11-22ms** Latency
- On Average **14.1ms** Latency



Efficiency improved by **50%**
Reliable & high performance
Network



AGV, Operation
safety improved by
70%



New addition of **digitally
supported processes**

Use Case 3: machine vision quality checks – 5G for a better quality

AS-IS

- Manual detection
>6 s

Pre-checking

- 32Mbps/UL, 32Mbps/DL
- Latency: Low

Package-Checking

- 80Mbps/UL, 16kbps/DL
- Latency: Required low

TO-BE



- Enable to warn early and troubleshoot problems by 5G intelligent monitoring

Key Validation Result

[illegible]

- **Six** detection points: $6 \times 60 = \mathbf{360 \text{ Mbps}}$
- **Uplink cell throughput (+ overhead)**
480 Mbps



With 5G- Overall handling time **2 seconds**



- Improve machine productivity by **14% on average**
- **Improved** Inspection Standard
- Hugely reducing **human intervention**

Use Case 4: AR-powered remote assistance – 5G for a **better digitalization**

AS-IS



- **High** on-Site **intervention cost**
- Number of traveler **(4)**
- Duration :**2 Months**

- Cost per Month : **8K**
- **Total Cost : 35K €**

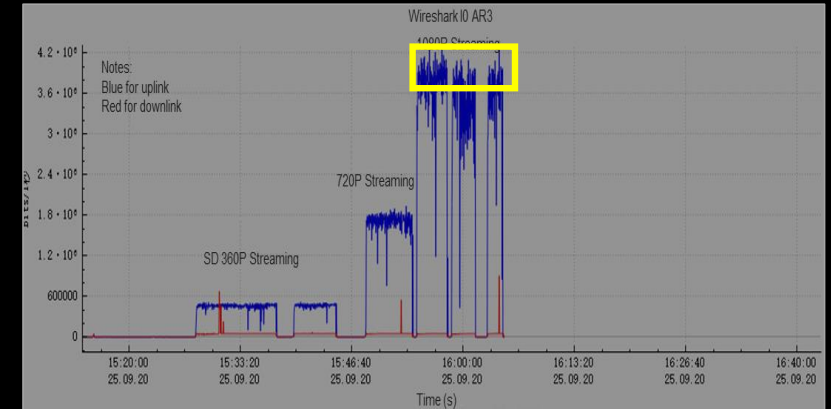
22 contracts per year, total Cost
770K €

TO-BE



- 5G technology helps to support **HD video** to decision making
- Avoid **business trips**
- More data **upload in real time**
- **Incredible Speed**

5G Test Results



4.2 Mbps/user@edge

Minimum cell uplink throughput: 84 Mbps



Highly **Digitalised**
Operation
On-Site Support
Expenditure **80 % Reduced**



Return of investment
250 %



Increase productivity
Reduce maintenance cycle
time

Building a better 5GtoB industry ecosystem together

Fruitful local ecosystem



AGV

- Europe is the **largest producer and exporter** of AGV in the world



Machine Vision

- Top 60** artificial intelligence (AI) companies in Germany



IIoT

- 170** Industrial IoT suppliers in Germany



Assembly tools

- 364** potential providers in Germany

Fruitful ongoing specification

Global Industry Standards



Available R16 spec.

5GACIA

Available Integration Spec. & Testbeds

German Standards



Replicable Enterprise Standards (20+)



5G Port



5G Manufacturing



5G eHealth

Fast-to-market open labs



5G-ACIA Labs



Partner introduction, verification and integration

Mock-up and validation duration:
> 6 months



Mock-up and validation duration:
~ **1 months**

Takeaways

5GtoB Accelerating Industry Digitalization in Europe



- 5GtoB strong focus on Industry Selection with focus of industrial value creation



- Actively contributing in 5G standards and investigating in new technologies



- The OpenLab serves as an incubation center for joint collaboration with verticals & fast verification and integration

Thank you.

把数字世界带入每个人、每个家庭、
每个组织，构建万物互联的智能世界。

Bring digital to every person, home, and
organization for a fully connected,
intelligent world.

**Copyright©2018 Huawei Technologies Co., Ltd.
All Rights Reserved.**

The information in this document may contain predictive statements including, without limitation, statements regarding the future financial and operating results, future product portfolio, new technology, etc. There are a number of factors that could cause actual results and developments to differ materially from those expressed or implied in the predictive statements. Therefore, such information is provided for reference purpose only and constitutes neither an offer nor an acceptance. Huawei may change the information at any time without notice.

